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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,128	11/15/2006	Anthony Richard Pratt	2001145.120US1	3127

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WILMERHALE/BOSTON
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BOSTON, MA 02109

EXAMINER	
CORRIELUS, JEAN B	

ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
07/01/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)
	10/595,128	PRATT ET AL.
	Examiner	Art Unit
	Jean B. Corrielus	2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-8,10-22,98 and 99* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4-8, 10-22, 98-99* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)	
1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/27/11*.	6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/27/11 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4, 8 and 10-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderford, Jr. et al US Patent Application Publication No. 2004/0131125.

As per claim 1, Sanderford, JR. et al discloses a method and apparatus comprising fig. 37 using a modulator E280 modulating a carrier signal (inherently provided in modulator E280 (note that in order to perform the modulation in modulator E280, a carrier signal is required, hence such limitation is inherently provided in the modulator E280) with a multicarrier modulated signal (-3,-2,-1,0,+1,+2,+3) (i.e., note

output of E260), to produce a modulated signal 7FSK, the multicarrier modulated signal (-3,-2,-1,0,+1,+2,+3) comprises 8 amplitude levels , where 8 is greater than 2. Sanderford, Jr. et al does not explicitly teach that the output of frequency modulator is a navigation signal. However, at paragraph 0222, Sanderford, Jr. et al suggests that the transmitter can be provided with a navigation system. Given that one skill in the art would have been motivated to incorporate the navigation system in Sanderford, Jr. et al as the result would have been predictable as it would have allowed the transmitter with the capability to generate the modulated signal as a navigation transmission signal.

As per claim 4, see rejection of claim 1 above.

As per claim 8, the at least one carrier includes two mutually orthogonal modulation signal (note the output of each mixer (fig. 37) (note that the inphase and quadrature signals are provided 90 degrees apart).

As per claim 10, see claim 8.

As per claim 11, see claim 8.

As per claim 12, it would have been obvious to one skill in the art to determine the multiple amplitudes of the inphase and quadrature carriers to maintain a constant transmission signal envelope and the motivation to do so would have been to ensure that the signal level is maintained within the operational range of the amplifier that may be used to transmit the signal.

As per claim 13, as applied to claim 1 above, , Sanderford, JR. et al teaches every feature of the claimed invention but does not explicitly teach the further limitation of deriving the amplitudes from a plurality of phase states. However, selecting the

amplitudes from a plurality of phase states would have been in the purview of one skill in the art as such would have enabled the amplitude of the signal that fit predetermined criterion so as to generate only desired modulated signal.

As per claim 14, providing phase states that are equally angularly distributed around the unit circle would have been in the purview of one skill in the art for the reason provided above with respect to claim 13.

As per claim 15, providing amplitudes of equal duration would have been in the purview of one skill in the art for the reason provided above with respect to claim 13.

As per claim 16, in fig. 37, Sanderford, JR. et al discloses amplitudes (-3,-2,-1,0,+1,+2,+3) of unequal duration are provided.

As per claim 17, it would have been obvious to one skill in the art to quantize the durations according to an associated clock signal so as to satisfy requirement of the system.

As per claim 18, it would have been obvious to one skill in the art to define the associated phase states according to mutually orthogonal axes so as to ensure that interference between the carrier signals is minimized.

As per claim 19, it would have been obvious to one skill in the art to associate the phase states with ranging signals so that the system can be used in radars that use ranging signals.

As per claim 20, it would have been obvious to one skill in the art to use unequal dwell times in the phase states for the reason provided above with respect to claim 13.

As per claim 21, it would have been obvious to one skill in the art to use a first dwell time for a first group of phase states and a second group of dwell time for a second group of phase states for the same reason provided above with respect to claim 13.

As per claim 22, see claim 17.

4. Claims 98-99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderford, Jr. et al US Patent Application Publication No. 2004/0131125 further in view applicant's background of the invention page 3, lines 3-12.

As per claim 98, as applied to claim 1 above Sanderford, Jr, et al teaches every feature of the claim invention but does not teach modulating a ranging signal using a subcarrier. However, applicant's background of the invention page 3, lines 3-12 teaches modulating a ranging signal using a subcarrier. Given that it would have been obvious to one skill in the art to have modified Sanderford, Jr. et al by modulating a ranging signal using a subcarrier in order to produce desired signal not being capable of being intercepted by unauthorized users.

As per claim 99, see claim 98.

5. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderford, Jr. et al US Patent Application Publication No. 2004/0131125 in view of Dahan et al US patent Application Publication No. 2002/0070799.

As per claims 5-6, as applied to claim 1 above, Sanderford, Jr. et al teach every feature of the claimed invention but do not explicitly teach the use of triangular wave as

a basis waveform. As shown in at least in the drawing (see front page of the US Patent application publication No. 2002/0070799 and note input to summer 35), it is well known in the art to use a triangular wave as a basis waveform. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Sanderford, Jr. et al in order to provide Sanderford, Jr. et al with the capability to generate desired carrier signal necessary to modulate the signal prior to transmission because, as known in the art, prior to any transmission, a signal has to properly modulated with a carrier so as to ensure proper transmission.

As per claim 7, the combined references teaches every feature of the claimed invention, but does not explicitly teach the additional limitations of selecting the waveform according to a desired power distribution characteristics of the transmission signal. However, selecting the waveform according to a desired power distribution characteristics of the transmission signal would have been in the purview of one skill in the art. Given that it would have been obvious to one skill in the art to select the waveform according to desired power distribution characteristics of the transmission signal so as to ensure that negative effect of the transmission medium is compensated for in order to improved integrity of the transmission system.

Response to Arguments

6. Applicant's arguments filed 5/27/11 have been fully considered but they are moot in view of the above new grounds of rejection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is (571)272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jean B Corrielus/
Primary Examiner, Art Unit 2611